REMARKS

The claims have been amended to state " A plasticized sealant against diffusion of oxygen, the sealant consisting essentially of a thermoplastic elastomer free of adhesive properties", so that, right from the "get-go" it is clear that the purpose of the claimed product is as a barrier or seal against diffusion of oxygen, not as an adhesive. The claims specify that the sealant is required to have (a) the stated oxygen permeability and (b) no adhesive properties using the ingredients specified. To the extent that the sealant may have some tack, a detackifier is used to negate the tack (as specified in claims 7, 9, 15 and 17). Support for this amendment of the claim is found in the specification as set forth below.

Referring to the specification, applicant, early on, stated:

"The thermoplastic blend of this invention provides an extrudable, injection-moldable or blow-moldable shaped article of arbitrary shape, most commonly a laminar sheet, *consisting essentially of a blend of synthetic rubber and polyisobutene plasticizer;* when formed into a seal having specified hardness and/or specified melt viscosity, the seal may be *removably secured* to the mouth of a container to seal its contents against a damaging concentration of oxygen permeating through the seal." (see specif., pg 2, end of second full paragraph).

Thereafter, applicant pointed out that "Its (liquid polyisobutene's) manufacturer teaches applications of the liquid polymer in adhesives." and quoted the text of those teachings in the specification (see specif., middle of pg 6), to point out that it was counterintuitive to use the same liquid polymer in a composition required to be free of adhesive properties.

Still further, applicant stated:

"In view of the fact that a sealing element for a closure means, such as a bottle cap, *must be removable* to use the contents of the bottle, *improving the adhesion of the seal to the mouth of the bottle is contraindicated.* But improving adhesion is what one would expect to do by adding polyisobutene to an elastomeric seal (as evidence by the references cited in the office action). There is nothing to suggest that one should add liquid polyisobutene to improve adhesion with the specific intention of finding a way *to negate the adhesive effect* obtained by use of the polyisobutene plasticizer." (see specif. pg 7, third full paragraph),

and,

"It is essential that the amount of polyisobutene plasticizer used be *insufficient, relative to the amount of TPE, so as to render the plasticized TPE-blend unusable as a seal* though the blend may be usable as an adhesive." (see specif. btm of pg 10).

The limitation of claim 3 has been incorporated in the independent claims.

The rejection of Claims 1, 3-6,10,16,18,19 and 22-24 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over St. Clair et al. (U.S. Patent No. 4,783,504), is respectfully traversed.

The rejection for obviousness will be addressed first, since, if the claimed sealant is not obvious over the '504 patent, the claimed sealant cannot be anticipated by the same reference.

It is respectfully submitted that the obviousness rejection, as stated in the office action, is not a *prima facie* rejection for obviousness of the claims as presently presented. The claimed sealant is essentially free of adhesive properties, therefore cannot be obvious over a reference teaching an adhesive. Further, the claimed sealant must be removably secured, and there is nothing in the '504 patent to suggest that the adhesive could be removably secured.

A patent-defeating rejection for obviousness requires that "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

The underlying factual inquiries include (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; and (3) the differences between the claimed invention and the prior art. *Graham v. John Deere Co.,* 383 U.S. 1, 17 (1966). In addition, where offered, the court must also consider a fourth factor, objective indicia of nonobviousness. *Yamanouchi Pharm. Co., Ltd. v. Danbury Pharmacal, Inc.,* 231 F.3d 1339, 1343 (Fed. Cir. 2000).

Referring to the '504 patent, note that the title states "Hot melt adhesive containing a silane grafted hydrogenated block polymer", and the stated relevant prior art are U.S. Patents Nos. 3,239,478 and 3,984,369, both to Harlan, U.S. Patent No 4,113,914 to Doss and U.S. Patent No 4,296,008 to St. Clair, all of them teaching adhesives, one better than another.

The '504 reference unequivocally specifies that it is directed to adhesives, the thrust of the invention being to improve the adhesion by grafting a silicone onto a polymer,

simultaneously desensitizing the adhesive's sensitivity to moisture. Other than the fact that in Table 2 the '504 reference shows the prior art use of a small amount of polyisobutene oil as an ingredient with a solvent (toluene), present in a major proportion by weight relative to the elastomer (a commercially available ungrafted polymer), there is nothing to suggest that the adhesives illustrated in '504 might be confused with the non-adhesive, removable sealant claimed by applicant.

Note that the three examples A, B and C identified in Table 2 show the use of a major proportionby weight of toluene as a solvent for Kraton block copolymers and Indopol H-300 polyisobutene oil. This is exactly the type of reference referred to by the manufacturer of the oil, and pointed out by applicant as being well known.

With respect to the properties of the formulations shown in the Table, irrespective of the oxygen permeability of the rubbers (which is known to be unsatisfactory), diluting them with a large amount of solvent such as toluene will only serve to increase the permeability.

The currently amended claim requires only the specified components, since the claim states "sealant consisting essentially of", which excludes other components except, of course, for less than 5 phr of commonly added additives such as a filler, stabilizer, processing aid, antiblocking aid, antistatic agent, wax, foaming agent, pigment or flame retardant.

The office action correctly cites the applicable law, citing In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980), namely that when the reference cited discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. However, this does not apply in this case as the Examiner can readily determine that the reference teaches an adhesive, and the claims specify a non-adhesive – diametrically opposed properties which cannot be considered properties which anticipate or render obvious the claimed invention.

It is evident from the foregoing that there is no suggestion in the '504 reference that the adhesive be modified so as to be non-adhesive, and no motivation for doing so.

Therefore it is respectfully suggested that claims 1 and 23 and the claims depending from them are allowable.

Claim 16 is directed to a closure means in which the sealant is required to be held in

removably sealing relationship with the closure means. Since the '504 specifies that its sealant is not only an excellent adhesive but that its adhesive properties are not seriously diminished in the presence of water, it is clear that the closure means of claim 16 is not obvious over the teachings of the St. Clair et al '504 patent.

Since the rejection for obviousness over the '504 reference is deficient, the claimed sealant cannot be anticipated by that reference. Nevertheless, addressing the rejection for anticipation, it (anticipation) can be found only if a reference shows exactly what is claimed; where there are differences between the reference disclosures and the claim, a rejection must be based on obviousness under Section 103. (see *Titanium Metals Corp. v. Banner,* 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985). "A public use or prior art reference anticipates a patent claim if each and every limitation of that claim is found, either expressly or inherently, in that single public use or prior art reference" (see *Akamai Technologies, Inc. v, Cable & Wireless Internet Services, Inc.* 344 F.3d 1186, 1192-93 (Fed.Cir. 2003) citing *Scripps Clinic & Research Foundation v. Genentech, Inc.* 927 F.2d 1565, 1576-77 (Fed. Cir. 1991).

A comparison of the limitations disclosed in the currently amended claim with those disclosed in the '504 patent, shows that the limitations are not the same.

The rejection of claims 1, 3-6,10,16,18,19 and 22-24 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Raimondi et al., is respectfully traversed.

The office action correctly points out that Raimondi et al use the same polyisobutene as in applicant's sealant, and that Table III they make a hot-applied solventless sealant using Kraton GX-1650 to produce a sealant having a Shore A hardness of 40-46.

However, to reach the specified hardness, the "hot-melt sealant" in Table III requires using 650 parts of Atomite $CaCO_3$ as a filler. To make sure it has the desired adhesion 250 parts of poly(α-methylstyrene) and 200 parts of Pexalyn A-072 (both tackifiers) are added. If, *arguendo,* for some unspecified reason, these ingredients are removed, the sealant of Table III would bear essentially no resemblance to the one illustrated.

In the Abstract, Raimondi et al proclaim that their composition comprises poly(alpha-methylstyrene), polybutene and a polystyrene/elastomer block copolymer. In the Summary

they clarify the statement in the Abstract, indicating that the "binder composition (is) suitable for use in adhesion and sealants comprising from about 5 to 200 phr of poly(α-methyl-styrene), from about 40 to 1200 phr of butylene polymers comprising predominantly of monoolefins, and about 100 phr of a styrene-elastomer copolymer in which an elastomer midblock comprises about 60 to 90% of the copolymer and is either isoprene, ethylene-butylene or butadiene. This composition can be used in conjunction with additional tackifiers, fillers and/or solvents to form adhesives or sealants and can be water emulsified to form water-based adhesives or sealants." (see col 1, lines 30-41).

Poly(α-methylstyrene) is obviously used in a very large proportion by weight relative to the block copolymer, as is the polybutenes, because the emphasis is on adhesion – which is precisely the property that is not wanted in the sealant claimed in this invention.

Moreover, as already pointed out, a block copolymer rubber such Kraton GX-1650, by itself, as unacceptably high permeability of oxygen. Adding the tackifiers to the block copolymer would only serve to increase the permeability, as it is well known that aromatic tackifiers increase permeability and reduce the barrier properties of the sealant.

The currently amended claim requires only the specified components, since the claim states "sealant consisting essentially of", which excludes other components except, of course, for less than 5 phr of commonly added additives such as a filler, stabilizer, processing aid, antiblocking aid, antistatic agent, wax, foaming agent, pigment or flame retardant.

The same remark, above, relating to the applicable law, citing In re Fitzgerald et al. is apt in this instance as it is evident that the stated adhesive properties of the Raimondi et al '555 binder composition are diametrically opposed to the non-adhesive properties of the caimed composition.

It is evident from the foregoing that there is no suggestion in the Raimondi et al '555 patent that their binder composition could or should be modified so as to be non-adhesive, and no motivation for making any modification of the formulations disclosed.

Therefore it is respectfully suggested that claims 1 and 23 and the claims depending from them are allowable.

Claim 16 is directed to a closure means in which the sealant is required to be held in removably sealing relationship with the closure means. Since the '555 patent specifies that its sealant is an excellent adhesive, whether used in solventless form, solvent form or as an aqueous emulsion, it is clear that the closure means of claim 16 is not obvious over the

teachings of the Raimondi et al '555 patent.

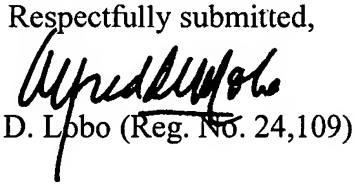
The rejection of Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raimondi et al. or St. Clair et al, cited above is respectfully traversed.

With particular reference to St.Clair et al '504, note that there is no mention of thickness – nil. The thickness of an adhesive composition is irrelevant when the adhesive is in a container; and after it is used as an adhesive, its thickness is not readily measurable as the adhesive exists in so thin a layer that it binds the contiguous surfaces without being visible. Not surprisingly, there is no mention of thickness – nil – in the Raimondi et al '555 patent as well. However, it is generally agreed that an adhesive layer bonding two contiguous surfaces is typically less than 10 μm (micrometers) thick.

Since the inherent thickness of the adhesive (when used) is well below the 0.1 mm lower limit specified in the claim, it is difficult to see how choosing a thickness 100 times thicker would be a mere matter of exercising an obvious choice.

In view of the foregoing remarks, arguments, and amendments to the claims, it is respectfully submitted that the basis for the rejections have been overcome and that the claims are in condition for allowance.

Respectfully submitted,



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BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE

To be completed in duplicate

REQUEST[1]
FOR THE FURNISHING OF SAMPLES
OF DEPOSITED MICROORGANISMS
pursuant to Rule 11.3(a)

TO
European Collection of Cell Cultures
Vaccine Research and Production Laboratory
Public Health Laboratory Service
Centre for Applied Microbiology and Research
PORTON DOWN
Salisbury, Wiltshire, SP4 0J9, UNITED KINGDOM
NAME AND ADDRESS OF INTERNATIONAL DEPOSITARY AUTHORITY

THE UNDERSIGNED HEREBY REQUESTS THE FURNISHING OF A SAMPLE OF THE MICROORGANISM IDENTIFIED HEREUNDER, IN ACCORDANCE WITH RULE 11.3(a) OF THE REGULATIONS UNDER THE BUDAPEST TREATY

I. IDENTIFICATION OF THE MICROORGANISM

Accession number of the deposit: V00083008

II. PATENT APPLICATION OR PATENT REFERRING TO THE MICROORGANISM

☐[2] Patent application No. filed on

Filed by (name, address):

☐[2] International Application (PCT) No. filed on

Filed by (name, address):

☒[2] Patent[3] No. 6,761,893 granted on July 13, 2004

granted to (name, address): Chaplin et al., Munich, GERMANY

[1] The request must be sent to the competent industrial property office which, in conformity with its own applicable procedure, will either transmit it directly to the international depositary authority or send it back to the certified party for transmission to the international depositary authority.

[2] Mark with a cross the applicable box.

[3] References to a "patent" shall be construed as references to patents for inventions, inventors' certificates, utility certificates, utility models, patents or certificates of addition, inventors' certificates of addition, and utility certificates of addition.